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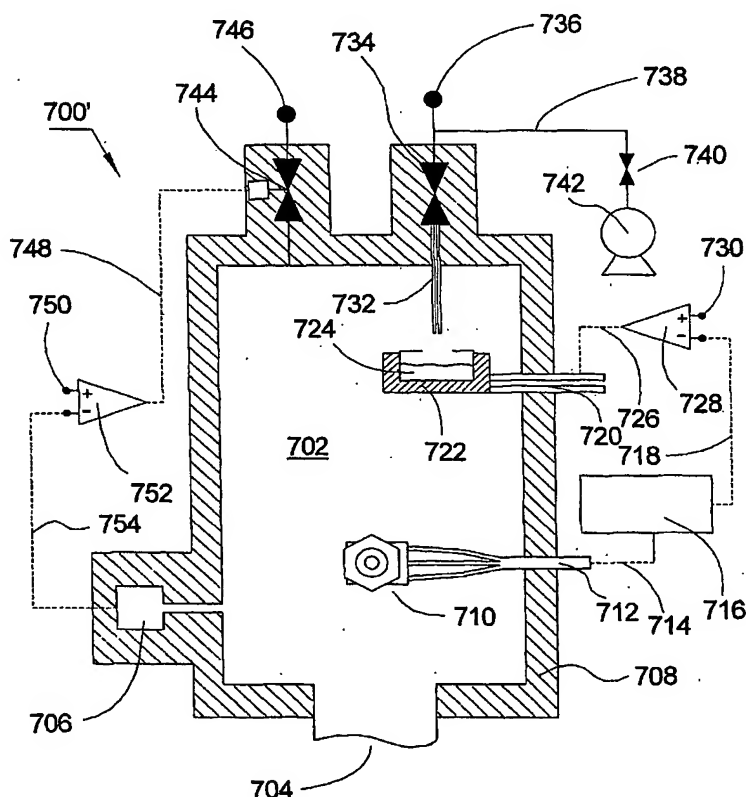
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(54) Title: **IMPROVED ALD APPARATUS AND METHOD**



(57) Abstract: Improved apparatus and method for SMFD ALD include a method designed to enhance chemical utilization as well as an apparatus that implements lower conductance out of SMFD-ALD process chamber while maintaining full compatibility with standard wafer transport. Improved SMFD source apparatuses (700, 700', 700'') and methods from volatile and non-volatile liquid and solid precursors are disclosed, e.g., a method for substantially controlling the vapor pressure of a chemical source (722) within a source space comprising: sensing the accumulation of the chemical on a sensing surface (711); and controlling the temperature of the chemical source depending on said sensed accumulation.



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**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ,*

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- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

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